AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0012] with the following paragraph, in which the spelling of the word "perfluronated" is corrected:

[0012] In an alternate embodiment of the present invention, the ionomer membranes may be sulfonated or carboxylated polymer membranes, which can be produced by sulfonating or carboxylating hydrocarbon or ~~perfluronated~~ perfluorinated polymers. Therefore, in a further embodiment of the present invention, the sulfonated or carboxylated polymer membrane shall comprise a ~~perfluronated~~ perfluorinated backbone chemical structure. In an even further alternate embodiment of the present invention, the sulfonated or carboxylated polymer membrane shall comprise a hydrocarbon backbone chemical structure.

Please replace paragraph [0013] with the following paragraph, in which the spelling of the word "perfluronated" is corrected:

[0013] Both the sulfonated polymer membrane, comprising the ~~perfluronated~~ perfluorinated backbone chemical structure, and the sulfonated polymer membrane, comprising the hydrocarbon chemical structure, significantly improve the plate-type heat exchanger's ability to transfer latent heat between air streams in comparison to the currently available plate-type heat exchangers comprising paper plates because both types of sulfonated polymer membranes have the ability to transfer a significantly greater amount of moisture. Additionally, the sulfonated polymer membrane comprising the hydrocarbon backbone structure is typically less expensive to manufacture than a sulfonated polymer membrane comprising a ~~perfluronated~~ perfluorinated backbone structure because fluorine chemical processing is typically more expensive than ordinary hydrocarbon organic chemistry. Therefore, although there is a cost benefit for including an ERV having a plate-type heat exchanger constructed of sulfonated polymer membranes with a ~~perfluronated~~ perfluorinated backbone stricture into an HVAC system, utilizing plates constructed of sulfonated polymer membranes having a hydrocarbon backbone would further increase the ERV's cost benefit.

Please replace paragraph [0035] with the following paragraph, in which the spelling of the word "polytetrafluroehtylene" is corrected:

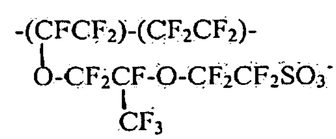
[0035] FIG. 20 is an ionomer membrane interposed between two layers of ~~polytetrafluroehtylene~~ <u>polytetrafluoroethylene</u>.

Please replace paragraph [0036] with the following paragraph, in which the spelling of the word "polytetrafluroehtylene" is corrected:

[0036] FIG. 21 is an ionomer membrane adjacent one layer of ~~polytetrafluroehtylene~~ <u>polytetrafluoroethylene</u>.

Please replace paragraph [0040] with the following paragraph, in which the spelling of the word "perfluronated" is corrected:

[0040] Referring to FIG. 2, there is shown a plurality of plates 20 spaced apart from one another to form passageways (i.e., gaps or spaces) between the plates 20. The plates 20 are constructed of an ionomer membrane, which has a high moisture transfer characteristic. An ionomer membrane shall mean a membrane composed of an ion containing polymer, such as a sulfonated polymer membrane or a carboxylated polymer membrane that is capable of transferring moisture from one of its sides to the other. A sulfonated polymer membrane shall mean a layer of polymer comprising a sulfonated ion ($SO_3^{-/+}$) within its chemical structure. The sulfonated ion ($SO_3^{-/+}$) is typically located within the side chain of a polymer having a ~~perfluronated~~ <u>perfluorinated</u> or hydrocarbon backbone structure. Examples of a generic chemical structure for a sulfonated polymer membrane comprising a ~~perfluronated~~ <u>perfluorinated</u> backbone chemical structure includes the following:



and

$$\begin{array}{l} -(CFCF_2)-(CF_2CF_2)- \\ \;\;| \\ (O-CF_2CF)_m-O-(CF_2)_n-SO_3^- \\ \qquad\quad\;\, | \\ \qquad\quad\;\, CF_3 \end{array}$$

wherein, m and n are comparable variables;

and

$$\begin{array}{l} -(CFCF_2)-(CF_2CF_2)- \\ \;\;| \\ \;\;O-CF_2CF_2-SO_3^- \end{array}$$

Moreover, examples of commercially available sulfonated polymer membranes having a ~~perfluronated~~ perfluorinated chemical structure include those membranes manufactured by W. L. Gore & Associates, Inc., of Elkton, Md. and distributed under the tradename GORE-SELECT and those ~~perfluronated~~ perfluorinated membranes manufactured by E. I. du Pont de Nemours and Company and distributed under the tradename NAFION.

Please replace paragraph [0041] with the following paragraph, in which the spelling of the word "perfluronated" is corrected:

[0041] An example of a generic chemical structure for a sulfonated polymer membrane comprising a hydrocarbon backbone chemical structure includes the following:

$$\begin{array}{l} -(CHCH_2)-(CH_2CH_2)- \\ \;\;| \\ \;\;O-CH_2CH-O-CH_2CH_2SO_3^- \\ \qquad\quad\;\;\, | \\ \qquad\quad\;\;\, CH_3 \end{array}$$

and

$$\begin{array}{l} -(CHCH_2)-(CH_2CH_2)- \\ \;\;| \\ (O-CH_2CH)_m-O-(CH_2)_n-SO_3^- \\ \qquad\quad\;\;\, | \\ \qquad\quad\;\;\, CH_3 \end{array}$$

wherein, m and n are comparable variables;

and

$$\begin{array}{l} -(CHCH_2)-(CH_2CH_2)- \\ \;\;| \\ \;\;O-CH_2CH_2-SO_3^- \end{array}$$

Moreover, an example of a commercially available sulfonated polymer membrane having a hydrocarbon backbone chemical structure includes the polymer membrane manufactured by

the Dais Corporation, of Odessa, Fla., and distributed under the product name DAIS 585. The cost of sulfonated polymer membranes comprising a hydrocarbon backbone chemical structure is currently about one percent (1%) to ten percent (10%) of the cost of sulfonated polymer membranes comprising a ~~perfluronated~~ perfluorinated backbone chemical structure. Therefore, it is especially preferable for the plates 20 of a plate-type heat exchanger to be constructed of sulfonated polymer membranes comprising a hydrocarbon backbone chemical structure because incorporating such plates into an ERV improves its latent effectiveness factor while minimizing its cost.

Please replace paragraph [0042] with the following paragraph, in which the spelling of the word "perfluronated" is corrected, and a grammatical informality at line 4 is corrected:

[0042] The sulfonated polymer membranes do not necessarily require a hydrocarbon or ~~perfluronated~~ perfluorinated backbone chemical structure. Rather, the backbone could be a block or random copolymer. The desirable thickness of the sulfonated polymer membranes is dependent upon ~~the~~ their physical properties, which are controlled by the chemical backbone structure, length of side chains, degree of sulfonation, and ionomic form (i.e., acid, salt, etc.). However, such block or random copolymer must have the ionic sulfonate group (SO_3). Additionally, the polymer membrane may be fully or partially sulfonated. Altering the degree of sulfonation affects the polymer membrane's ability to transfer moisture, and it is generally preferable to have a high degree of sulfonation within the polymer membrane.

Please replace paragraph [0045] with the following paragraph, in which a grammatical informality in the last line is corrected:

[0045] As discussed in U.S. Pat. No. 5,785,117, which is hereby incorporated by reference, an additional means for sealing the sides of the plates 20 to create the alternating passageways 26, 28, may include creating a flange with the opposite sides of the plates 20. Specifically, referring to FIG. 4, two opposing sides of a plate 20 are bent in one direction at approximately 90.degree. to create flanges 52. The other two opposing sides of the same plate 20 are also bent in the opposite direction at approximately 90.degree. to create flanges 54. The next adjacent plate 20 has two sets of opposing sides wherein, one set has flanges 56 bent

in one direction at approximately 90.degree.. and the other set has flanges 58 bent in the opposite direction at approximately 90.degree.. When these two plates are adjacent to one another, the flanges 54 and the flanges 56 overlap to create passageway 28 and seal the sides of such passageway. When the next pair of plates 20 are adjacent to one another, the flanges 52 and the flanges 58 overlap and create passageway 26 and seal the sides of such passageway. Although not shown, a further means for sealing a pair of plates 20 to create a passageway may include placing an adhesive tape or a face plate, or another type of obstruction between the space between ~~of~~ two plates 20.

Please replace paragraph [0048] with the following paragraph, in which the reference to "12c" in Fig. 6 is corrected:

[0048] Referring to FIG. 7, there is shown an alternate embodiment of the plate-type heat exchanger 12c of the present invention. The plate-type heat exchanger 12c in FIG. 7 replaces the continuous corrugated sheet 30 within the plate-type heat exchanger ~~12c~~ 12b illustrated in FIG. 6, with a corrugated lattice structural sheet 36. Referring to FIG. 8, there is shown a three dimensional view of the corrugated lattice structural sheet 36, as described in U.S. Pat. Nos. 5,527,590, 5,679,467, and 5,962,150, which are hereby incorporated by reference. Referring to FIG. 8A, there is shown an enlarged view of a portion of the corrugated lattice structural sheet 36 in FIG. 8, constructed from a plurality of uniformly stacked pyramids in a three dimensional array. Each pyramid is constructed of intersecting cross members 60 that intersect at the vertex 61 of the pyramid. An example of such a corrugated lattice structural sheet includes that which is manufactured by Jamcorp of Wilmington, Mass. and distributed under the tradename LATTICE BLOCK MATERIAL (LBM). The corrugated lattice structural sheet 36 is typically constructed of metal, plastic, or rubber.

Please replace paragraph [0050] with the following paragraph, in which the reference to "Fig. 3 and 4" is corrected:

[0050] Referring to FIGS. 9 and 10, which are cross sections of the plate-type heat exchanger 12c illustrated in FIG. 7 taken along lines 9-9 and 10-10 respectively, in order to

transfer heat from passageway 26 to passageway 28, the heat need only pass through the plate 20. Because the corrugated lattice structural sheet 36 is an open structure, the gas stream is able to flow freely throughout the passageways 26, 28. Additionally, because the corrugated lattice structural sheet 36 only makes point contact with the plate 20, the majority of surface area on the plate 20 is available to transfer heat from one passageway to the other. Compared to the continuous corrugated sheet 30, the corrugated lattice structural sheet 36 is a more efficient means for spacing apart the plates 20 from one another. Furthermore, the design of the lattice structural sheet 36 may mix (i.e., stir) the gas stream as it passes through the passageways 26, 28, thereby increasing the effectiveness factor of the plate-type heat exchanger 12c. However, because the corrugated lattice structural sheet 36 is an open structure, the plate-type heat exchanger 12c requires a means for sealing two opposing sides of the passageways 26, 28, thereby allowing the gas streams to pass therethrough in respective first and second directions. The sealing means may comprise spacer bars 22, 24 as illustrated in ~~FIG.~~ FIGS. 3 and 4 or any other sealing means discussed hereinbefore.

Please replace paragraph [0053] with the following paragraph, in which the references to "Fig. 15 and 16" and to "Fig. 3 and 4" is corrected:

[0053] Referring to FIG. 14, there is shown an alternate embodiment of the plate-type heat exchanger 12d of the present invention. Unlike the plate-type heat exchanger 12b in FIG. 6 and the plate-type heat exchanger 12c in FIG. 7, the plate-type heat exchanger 12d in FIG. 14 does not include a partial obstruction, such as the continuous corrugated sheet 30 and corrugated lattice structural sheet 36, within the passageways 26, 28 to support the plates 20 or keep them apart from one another. Rather, the plates 20 in the plate-type heat exchanger 12d of FIG. 14 are supported by a sheet of webbed netting 42. The webbed netting 42 is typically constructed of plastic, which is compatible with the sulfonated polymer membrane such that webbed netting 42 will adhere to the membrane regardless of whether the webbed netting 42 is adjacent the membrane or embedded therein: The strand thickness and the spacing between the nodes are chosen to provide the required stiffness to the sulfonated polymer membrane, while maximizing the membrane's surface area that is exposed to the gas stream. Referring to FIGS. 15 and 16, which are cross sections of the plate-type heat

exchanger 12d illustrated in FIG. 14 taken along lines 15-15 and 16-16 respectively, the plate 20 is interposed between sheets of webbed netting 42, which reinforces the plate 20. Referring to FIG. 17, which is a cross section of the plate-type heat exchanger illustrated in FIG. 15 taken along line 17-17, this figure illustrates the top view of the webbed netting 42 laid over the plate 20. Referring back to ~~FIG.~~ FIGS. 15 and 16, because the passageways 26, 28 are unobstructed, the plate-type heat exchanger 12d requires a means for sealing two opposing sides of the passageways 26, 28, thereby allowing the gas streams to pass therethrough in respective first and second directions. The sealing means may comprise spacer bars 22, 24 as illustrated in ~~FIG.~~ FIGS. 3 and 4, or any other sealing means discussed hereinbefore.

Please replace paragraph [0054] with the following paragraph, in which the references to "Fig. 15 and 16" are corrected:

[0054] Referring to FIG. 18, there is shown another alternate embodiment of the webbed supported plate illustrated in ~~FIG.~~ FIGS. 15 and 16. Unlike plate 20 illustrated in ~~FIG.~~ FIGS. 15 and 16 which is supported by a sheet of webbed netting 42 on both sides, the plate 20 in FIG. 18 is only supported by one sheet of webbed netting 42 adjacent the plate 20. Although FIG. 18 depicts the sheet of webbed netting 42 on top of the plate 20, the webbed netting 42 may also be placed below the plate 20. Therefore, depending upon the stiffness of the plate 20 and the webbed netting 42, the plate 20 may be supported by one or two sheets of webbed netting 42 that are situated above and/or below the plate 20.

Please replace paragraph [0056] with the following paragraph, in which the spelling of the word "polytetrafluroehtylene" is corrected:

[0056] Referring to FIG. 20, there is shown another alternate embodiment of the present invention which replaces the layers of webbed netting 42 with layers of plastic 46 to provide additional support to the plate 20. Specifically, the plate 20, which is constructed of a sulfonated polymer membrane, is interposed between two layers of plastic 46, such as ~~polytetrafluroehtylene~~ polytetrafluoroethylene (PTFE), expanded polytetrafluoroethylene (ePTFE), polypropylene, or other porous (i.e., open cell) polymer film that permits air

permeation while minimizing the pressure drop of the passing air stream. Referring to FIG. 21, depending upon the stiffness of the plastic layer 46 and the plate 20, the plastic layer 46 may be adjacent to one side of the plate 20, and the adjacent side may be on the top or bottom of the plate 20.

Please replace paragraph [0057] with the following paragraph, in which the reference to "Fig. 3 and 4" is corrected:

[0057] Referring to FIG. 22 there is shown another alternate embodiment of the plate-type heat exchanger 12e that includes an alternate layer of webbed netting 48 between the plates 20. Specifically, the layer of webbed netting 48 includes nodes 50 that have a diameter equal to the height of the passageways 26, 28. The nodes 50 are the intersection points of the strands. Therefore, referring to FIGS. 23 and 24, which are cross sections of the plate-type heat exchanger 12e illustrated in FIG. 22 taken along lines 23-23 and 24-24 respectively, the layer of webbed netting 48 is interposed between the plates 20 such that the nodes 50 contact the plates 20. This contact serves as a means for spacing apart the plates 20, which are also supported by the webbed netting 48. Because the nodes 50 are distributed within the layer of webbed netting 48, the nodes 50 do not form a seal with the plates 20. Hence, the layer of webbed netting 48 is an open structure, thereby requiring the plate-type heat exchanger 12e to include a means for sealing two opposing sides of the passageways 26, 28 to the gas streams to pass therethrough in respective first and second directions. The sealing means may comprise spacer bars 22, 24 as illustrated in ~~FIG.~~ FIGS. 3 and 4 or any other sealing means discussed hereinbefore.